



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,420	01/09/2004	Kia Silverbrook	DAM13US	6728
24011	7590	03/29/2006	EXAMINER	
SILVERBROOK RESEARCH PTY LTD 393 DARLING STREET BALMAIN, NSW 2041 AUSTRALIA			MASINICK, MICHAEL D	
			ART UNIT	PAPER NUMBER
			2125	

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/753,420

Applicant(s)

SILVERBROOK, KIA

Examiner

Michael D. Masinick

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12, 14 and 18 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 13 and 15-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: Examiner would prefer a colon be used after the preamble to more clearly define the metes and bounds of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,202,734 to Sackinger et al in view of U.S. Patent No. 6,519,824 to Nagasaki et al.

3. Referring to claims 1-4, Sackinger shows a drop on demand jet application system for molten metals where 3D products are formed by spraying molten metal (abstract). Sackinger also shows electrical currents being applied to the metal (Claim 5).

4. Sackinger does not specifically show that this molten metal is used to print electrical connections to at least one object incorporated in the products.

Art Unit: 2125

5. Nagasaki shows an electrical wiring formation system where a metal alloy slurry is formed into a “continuous wiring pattern” using a printing method (Column 11, lines 6-29). This printing method is done so that objects incorporated into the design will have the wiring present.

6. It would have been obvious to one of ordinary skill at the time of the invention to use the molten metal drop on demand printing system of Sackinger to print the electrical path components of Nagasaki because “time is no longer required for preparation of a mask, and so forth making it possible to manufacture a wiring board in a short period of time.” (Nagasaki, Column 12, lines 40-46).

7. Claim 5-9, 12, 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,202,734 to Sackinger et al in view of U.S. Patent No. 6,519,824 to Nagasaki et al as shown above and further in view of U.S. Patent No. 5,594,652 to Penn.

8. With reference to what has been shown above, Sackinger in view of Nagasaki does not show where the system prints products layer by later and prints at at least part of each of multiple layers simultaneously.

9. Penn is a computer controlled system for 3D printing where part of each layer is printed simultaneously. Penn also shows that metal can be used as the printing “liquid” (Column 9, line 15).

10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the lessons of Penn to print a 3D object layer by layer using the electrical concepts set forth in Sackinger in view of Nagasaki because 3D printing allows for rapid

Art Unit: 2125

production of objects and, according to Penn, “many other materials and combinations are possible, limited only by the imagination of those skilled in the art” (Column 11, lines 40-49).

11. Referring to claim 6, Penn shows a plurality of printheads (Column 6, lines 51-65).

12. Referring to claim 7, Penn shows wherein each layer is defined by a plurality of voxels arranged in a regular array and wherein the voxels of each layer are printed so as to be offset by half a voxel relative to the voxels of adjacent layers in a first direction, a second direction perpendicular to the first direction or both the first and second directions (“stacked” – column 4, lines 3-28). Examiner notes that whenever an object is built (such as a brick building, or stacking apples in the supermarket) they are always built with an offset as described.

13. Referring to claim 8 and 9, Penn shows wherein the printheads are configured to enable printing of at least two different materials in at least one layer and wherein the printheads are configured such that at least one of the layers may be printed with a first set of materials and at least one other of the layers may be printed with a second set of materials, and wherein the first and second sets are not the same (Top of column 3).

14. Referring to claim 12, Penn shows wherein the system includes semiconductor memory and wherein data defining at least one layer is stored in the semiconductor memory (Column 9, “microprocessor control system”).

15. Referring to claim 14, Penn shows including a least two printheads, a first one of the printheads printing a first material and a second one of the printheads printing a second material, the first material being cured by a first method and the second material being cured by a second method and wherein the first and second methods are different (Column 3).

Art Unit: 2125

16. Referring to claim 18, Penn shows including a least two printheads, wherein a first printhead is actively maintained at a first temperature and a second printhead is actively maintained at a second temperature (Column 11, lines 40-49).

Allowable Subject Matter

17. Claims 10, 11, 13, and 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. Applicant is reminded of their duty to disclose any knowledge of prior art that may be relevant to the claims at issue, especially claims indicated as allowable subject matter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D. Masinick whose telephone number is (571) 272-3746. The examiner can normally be reached on Mon-Fri, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2125

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'MDM', is positioned above the printed name.

Michael D Masinick
Examiner
Art Unit 2125

MDM, March 24, 2006